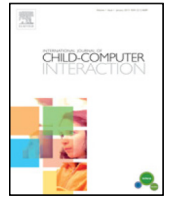




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# Parental involvement and attitudes towards young Greek children's mobile usage

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## ABSTRACT

Smart mobile devices are widely used for dealing with information on education and provide entertainment at home and school. Mobile applications (apps) directed towards young aged children have changed the digital media landscape for infants and toddlers. Parents' preferences and beliefs towards technology has a major role in toddlers' and infants' use of technology as they directly affect the quality and the quantity of digital media available to them especially at home. It is, therefore, crucial to understand how parents perceive the changes imposed by smart screen technologies upon their children's development; their diverse beliefs, and practices. To date, in Greece, few studies have examined the use of smart screen technologies among young children especially at home. This study presents the main findings from a research conducted with 293 families in Greece between September 2018 and November 2018. It reports on parents' perceptions regarding children's usage of smart mobile technologies both at the home and the kindergarten context. The study results show that most of the parents have positive attitudes towards the use of these technologies. Parents want to support their children's learning and seek to provide a stimulating home learning environment for them. Parents' answers seem to differentiate depending on socioeconomic background, age and education. Older and less-educated parents seem unable to adapt appropriately to rapid technological progress and thus cannot effectively exploit the advantages that mobile learning technologies have to offer to children. On the contrary, younger parents or parents with a higher education level seem to more easily adapt to the new conditions striving to develop a better learning environment at home. However, the positive parents' attitudes about mobile learning are hampered by the lack of the knowledge about the choice of apps with 'substantial educational value' as well as their use, particularly in the domestic environment. We anticipate that the findings from this study would provide valuable information for early childhood researchers, stakeholders and teachers leading to better learning digital experiences and even better outcomes for young aged children.

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## 1. Introduction

Mobile computing technologies have been on the open market commercially for most of the 21st century, but it was not until 2010, that Apple launched the iPad, and the entire world became obsessed with a new interface—touchscreen devices [1,2]. Mobile devices are part of everyday families and ubiquitous in toddler's and infant's lives and most of the young aged children – including those in disadvantaged households – are growing up with digital technologies every day [3] even from birth [4]. Children under 8 years of age now spend about one hour per day using mobile devices, displacing time that kids used to spend watching television [5]. Especially for tablets, screen size, portability and ease

of use are beneficial characteristics for use among children [6,7]. Most children are habituating to these devices in ways that were restricted by traditional input devices [8]. Furthermore, children are more likely to use a tablet device daily than a smartphone or another smart screen device; to take advantage of the larger screen of the tablet allowed for a more natural use and creative environment [9].

Furthermore, the appeal of smart screen technologies is likely due to the increased popularity of mobile applications (apps) [9,10]. Touch screen technology allows infants and toddlers to engage easily with a plethora of apps for education or entertainment [11]. When children have access to an internet-connected mobile device like a smartphone, an iPad or other tablet, installing apps on the device can become an activity in itself [6].

Research has also shown that parental beliefs, opinions and attitudes, as well as personal use of apps relate directly to children's use of mobile devices [10]. Especially with very young

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age children, parents' perceptions and attitudes towards technology positively or negatively influence child behaviors regarding screen media use. Martens et al. [12] mention that most parents are using digital technology with their children either because they are technology addicted or because they fear that their children will get left behind when they start school and continue to be behind if they do not have personal computers or smart screen devices at home. Many parents feel that smart screen technology should be included in the curricula of preschool education as an opportunity to prepare children for their future careers [13]. On the contrary, parents who are more negative about the use of smart screen technology are more likely to restrict children's use of digital technology at home [14]. Eisen and Lillard [9] state that if parents do not view touch screen technology as an efficient method to promote children's learning as they view books and other media and do not invest time with apps they may influence the interaction of young children.

Thus, parents' attitudes towards smart screen technologies have an important role in the strategies they adopt towards their children's use of these devices [6]. It is therefore crucial to understand how parents perceive the use of touch screen technologies for children's learning as their perceptions may affect the quality and the quantity of smart mobile devices and apps available to their children.

In order to address the gap in the current literature, the purpose of this study is to investigate perceptions of the use of smart mobile devices for their children with a primary focus on educational apps. Given the current lack of data from prospective studies on this topic, we examined Greek parental perceptions of smart mobile technologies and their children's engagement with them.

## 2. Literature review

As touch screen technologies have proliferated in recent years, very young children have become routine users of newer technologies [15]. Especially, tablet type devices are now well recognized across all socioeconomic classes [16] as they can be considered as computational devices, thanks to their affordability, compared to other types of digital devices, and their versatility of use [6]. These devices are increasingly adopted in both developing and well developed countries as shared devices across family members [6]. Seo and Lee [14] state that with the drastic diffusion of touchscreen devices many parents define them as the nanny for middleclass families. Parents mostly provide young children access to touch screen devices [17]. It has been increasingly observed that adults pass their device to a child for a short time mainly for entertainment [18].

Rideout et al. [19] state that the percentage of 2 to 4 year old children using a smart screen device, has increased in the United States from 39% in 2011 to 80% in 2013, while time spent on viewing television decreased. Griffith and Arnold [16] conducted a study in the United States and found that most families that own at least one smartphone or tablet reported that their 4 year old used the mobile devices. Children's favorite activities included playing educational and noneducational games, watching videos, etc. In the same study 67% of the parents indicated that they installed apps specifically for their children to use [16]. In 2011, another study in Europe found that 62% of Norwegian children aged between 0 and 6 years had experiences with touch screen devices in the home (Hardensen & Guðmundsdóttir, 2012 as cited by [20]). Another European study focused on families with children younger than 8 years old showed that tablets have quickly become the most popular device among family members [21]. Other British and Dutch studies found that the majority of young children will have mastered most of the basic skills needed to independently operate touchscreen technologies (swiping, tapping,

navigating to desired apps) by ages 5 to 7 and sometimes much earlier [22].

Young children prefer touchscreen devices such as smartphones and tablets, because of their multimodality, affordability, efficiency and portability [23]. Moreover, the compact size, and the light weight of the device allows children to lay the smart screen device on their laps, or on a flat surface moving freely within their home area [24]. These devices also provide access to learning through physical interaction as the touch screen technology allows children to manipulate digital content on the screen using the same gestures they would use to play with traditional toys [2]. In addition, the multimedia capabilities of touchscreen media can stimulate sensory modalities (visual, auditory, tactile, and kinesthetic) [24]. Thus, the directness of the touch screen enables young children to explore ideas using different modalities in playful explorations [6]. As a result, touchscreen media are perceived as play suitable devices for young children while computers for work [1]. As far as the touchscreen interface is concerned, it is far easier for children under the age of five than the keyboard and mouse interface for 'traditional' computers. Young children learn how to interact with touchscreen devices by observing the behavior of adults and other older members of the family [6] helping young children to develop a wide range of cognitive and non-cognitive skills, in their use with these devices. The majority of 3 to 5 year old children can swipe the screen, drag items, open and exit apps without the presence of an adult [25]. Even toddlers are accessing touchscreen technologies with increasing frequency [6,26].

Therefore, touchscreen mobile technologies dominate in the lives of most young aged children and their families [16,23]. The rapid development of smart mobile devices and apps provide children with the opportunity to create and shape their own media landscape following their interests either supported their parents or on their own [6]. Compared to other educational resources, the greater interactivity of a tablet results in an autonomous learning experience, leading to positive attitude towards learning [21]. The National Association for the Education of Young Children (NAEYC) is now encouraging the use of technology into classrooms, as when it is used effectively, it helps students engage in the learning process [27]. Furthermore, mobile applications are often advertised for preschool-aged learners [28–32], more than for any other age group [15]. An app is a software application that is designed for a mobile operating system such as Google Android or Apple iOS and which extend the smart device's capabilities enabling users to perform various tasks [33]. Thousands of apps presented in digital app stores such as Apple App Store and Google Play [3] are advertised as being specially designed to teach toddlers and preschoolers about language, numbers, and other cognitive abilities [34]. Griffith and Arnold [16] highlight that over 80,000 apps that are available from Apple's App Store (iPad tablet devices) are advertised as being 'educational'. In total, 80% of parents of children aged 2 to 8 have downloaded and installed apps, whether free or paid, for their kids [16]. Martens et al. [12] found that be simply typing the terms 'ABC' or 'Alphabet', in the App Store returned on average 280 alphabet learning apps. In the form of self-proclaimed educational apps, factors such as developmentally appropriate content, shorten waiting times, feedback, activity-based incentives, goal setting and parental involvement can help children to sustain interest and development [18]. But figuring out which apps have real educational value is not easy [35]. Parent's endorsement of educational apps for children has become a multimillion-dollar industry for companies and developers although questions about the real educational effects of apps remain largely unanswered [34]. It is an important point, whether the app is based on rote learning, or inquiry-based problem-solving activities that help

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